REMARKS

Reconsideration and allowance of the subject application are respectfully requested. Claims 1-20 remain pending, claim 1 being independent. In this Reply, Applicant has amended claims 1 and 4.

In reply to the Examiner's objection to the title as being insufficiently descriptive, Applicant has amended the title to read --ELECTRIC LOAD MANAGEMENT CENTER INCLUDING GATEWAY MODULE AND MULTIPLE LOAD MANAGEMENT MODULES FOR DISTRIBUTING POWER TO MULTIPLE LOADS--. Applicant requests that the Examiner accept this title or suggest a title that would be acceptable.

Rejection Under 35 U.S.C. § 112, Second Paragraph

Claim 4 stands rejected under 35 U.S.C. § 112, second paragraph, as allegedly being indefinite for failing to particularly point out and distinctly claim the subject matter which Applicant regards as the invention. This rejection, insofar as it pertains to the presently pending claims, is respectfully traversed.

As stated on page 2 of the Office Action, the Examiner asserts that the phrase "the sensor resistor" in claim 4 lacks sufficient antecedent basis. To address this ground of rejection, Applicant has amended the phrase "the sensor resistor" to read --a sensor resistor--. In view of this amendment, Applicant respectfully

requests that the Examiner reconsider and withdraw the rejection under 35 U.S.C. § 112, second paragraph.

Prior Art Rejections

1. *Darty - Maher - Smith - Rostoker*

Claims 1 and 15 stand rejected under 35 U.S.C. § 103 as allegedly being unpatentable over *Darty et al.* (U.S. Patent 5,752,047) in view of *Maher et al.* (U.S. Patent 5,723,915), *Smith* (U.S. Patent 5,266,793) and *Rostoker et al.* (U.S. Patent 5,339,262). This rejection is respectfully traversed.

Independent claim 1 is directed to an electrical power distribution center comprising: a gateway module; two internal serial data buses; and a plurality of load management modules. The gateway module includes logic to interface to a vehicle management computer (VMC) via a dual redundant data bus, wherein the gateway module comprises redundant microcontrollers operably connected to the VMC for selectively controlling supply of electrical power to a plurality of separate electrical loads. The redundant microcontrollers of the gateway module and the load management modules are each operably connected to the two internal serial data buses, which are of different types. Each load management module comprises: a local microcontroller; a plurality of power switching devices; and a plurality of application specific integrated circuits (ASICs) corresponding to the plurality of power switching

devices for interfacing the power switching devices to the local microcontroller.

The primary reference, *Darty*, discloses a modular solid state power controller with microcontrollers. (See e.g., Figs. 1-2). The modular solid state power controller includes solid state power control (SSPC) cards 5, 7, 9, and 11, each including a microcomputer and a plurality of power switches associated with corresponding electrical loads. (Abstract; Column 6, Lines 12-16). A master controller microcomputer 1 on a controller card communicates bilaterally with each of the microcomputers embedded within the SSPC cards 5, 7, 9, and 11 via a serial data path 3 to control the semiconductor power switches associated with the respective SSPC cards 5, 7, 9, and 11. (Column 6, Lines 3-10). As described on page 2 of the current specification, the modular solid state power control design of *Darty* utilizes discrete components to provide control of the power switches connected to respective electrical loads, thus relying on the SSPCs 5, 7, 9, and 11 for on/off control of corresponding power switches. (Column 6, lines 12-16).

On page 4 of the Office Action, the Examiner acknowledges deficiencies in *Darty*, including the lack of: a dual redundant data bus for connecting the gateway module to the VMC; two internal serial data buses of different types operably connected to the redundant microcontrollers of the gateway module and the plurality

of load management modules; and a plurality of ASICs in each load management module (allegedly equating to the SSPC card of *Darty*) for interfacing the power switching devices to the local microcontroller of the load management module. The Examiner attempts to make up for these deficiencies of *Darty* by relying on the secondary teachings of *Maher*, *Rostoker*, and *Smith*. More specifically, the Examiner relies on *Maher* as teaching a solid state power controller (Fig. 1) for switching power on/off to an electrical load, whereby the power controller utilizes a Supply ASIC 12 and a Control ASIC 14. The Examiner relies on *Rostoker* as disclosing a technique for testing an electronic system having an ASIC. The Office Action cites Column 1, Lines 36-40 of *Rostoker* as teaching that "[by] [u]sing one or more ASICs specifically designed for an application, a system designer can dramatically reduce the number of components . . . ."

The Examiner concludes on page 4 of the Office Action that:

> it would have been obvious to a person of ordinary skill in the art at the time of invention to replace the discrete components used by Darty to control the power switching devices in the Load Management Modules with the ASIC enabled power switching device described by Maher as a design choice for the well-known benefits described by Rostoker.

Applicant respectfully submits that this reasoning fails to establish *prima facie* obviousness of claim 1. As recited above, claim 1 specifies an electrical power distribution center having a gateway module and a plurality of load management modules, wherein

each load management module comprises: a local controller; a plurality of power switching devices; and a plurality of ASICs corresponding to the plurality of power switching devices for interfacing the power switching devices to the local microcontroller. The cited controller of *Maher*, which utilizes a pair of ASICs in a solid state circuit controller arrangement, fails to teach or suggest this particular load management module arrangement. The invention of claim 1 does not merely require the use of an ASIC in a solid state power switching arrangement, and instead requires a particular arrangement - in which each load management module includes a plurality of ASICs that interface corresponding power switching devices with the local microcontroller of the load management module.

Likewise, the cited teachings of *Rostoker*, relating to a technique for testing an electronic system incorporating an ASIC, fails to teach or suggest the particular load management module arrangement recited in claim 1. Therefore, these references fail to suggest the alleged "design choice" relied on by the Examiner to assert obviousness. There is nothing in the secondary teachings suggesting that the particular load management module configuration recited in claim 1 is an obvious design choice for a power controller configuration like that of *Darty*. Furthermore, although the asserted modification of *Darty* apparently would incorporate ASICs in the SSPC cards 5, 7, 9, and 11 to control power switching,

Applicant notes that the disclosed configuration of *Darty* utilizes a microcontroller in the SSPC cards for controlling power switching. Therefore, the proposed modification, which would apparently substitute the SSPC microcontroller with an ASIC, would not result in a load management module configuration as recited in claim 1, which comprises a local microcontroller and a plurality of ASICs for interfacing the corresponding plurality of power switching devices with the local microcontroller.

The Examiner relies on *Smith*, which discloses a safety mechanism for preventing injury to a machine operator (column 4, lines 25-31), as suggesting the desirability of redundancy. Applicant notes, however, that this reference fails to suggest the serial data bus arrangement recited in claim 1, in which internal serial data buses of two different types are used for operable connection with redundant microcontrollers of the gateway module and the plurality of load management modules.

To establish *prima facie* obviousness, all claim limitations must be taught or suggested by the prior art and the asserted modification or combination of prior art must be supported by some teaching, suggestion, or motivation in the applied reference or in knowledge generally available to one skilled in the art. *In re Fine*, 837, F.2d 1071, 5 USPQ2d 1596 (Fed. Cir. 1988); *In re Jones*, 958 F.2d 347, 21 USPQ2d 1941 (Fed. Cir. 1992). Thus, "[a]ll words in a claim must be considered in judging the patentability of that

claim against the prior art." *In re Wilson*, 424 F.2d 1382, 1385, 165 USPQ 494, 496 (CCPA 1970). The prior art must suggest the desirability of the modification in order to establish a *prima facie* case of obviousness. *In re Brouwer*, 77 F.3d 422, 425, 37 USPQ2d 1663, 1666 (Fed. Cir. 1995). It can also be said that the prior art must collectively suggest or point to the claimed invention to support a finding of obviousness. *In re Hedges*, 783 F.2d 1038, 1041, 228 USPQ 685, 687 (Fed. Cir. 1986); *In re Ehrreich*, 590 F.2d 902, 908-09, 200 USPQ 504, 510 (CCPA 1979).

At least in view of the above, Applicant respectfully submits that the asserted combination of *Darty*, *Maher*, *Smith*, and *Rostoker* (assuming these references may be combined, which Applicant does not admit) fails to establish *prima facie* obviousness of claim 1 or any claim dependent therefrom.

In view of the above, Applicant respectfully requests reconsideration and withdrawal of the Examiner's rejection under 35 U.S.C. § 103 based on the asserted combination of *Darty*, *Maher*, *Smith*, and *Rostoker*.

2. *Darty - Maher - Smith - Rostoker - Lee*

Claim 2 stands rejected under 35 U.S.C. § 103 as allegedly being unpatentable over *Darty* in view of *Maher*, *Smith*, and *Rostoker*, and further in view of *Lee et al.* (U.S. Patent 6,735,709). This rejection is respectfully traversed.

As set forth on page 6 of the Office Action, the Examiner relies on *Lee* as allegedly teaching incremental features of dependent claim 2. Applicant notes, however, that the Examiner's reliance on *Lee* fails to make up for the deficiencies of the asserted *Darty*, *Maher*, *Smith*, and *Rostoker* combination discussed above. Furthermore, *Lee* fails to suggest the particular load management module configuration required by claim 2, having a plurality of ASICs corresponding to the plurality of power switching devices for interfacing the power switching devices to the local microcontroller, wherein each such ASIC provides logic for internal reset and calibration sequences during a power-up initiation cycle.

At least for this reason, Applicant submits that the asserted combination of *Darty*, *Maher*, *Smith*, *Rostoker*, and *Lee* (assuming these references may be combined, which Applicant does not admit) fails to establish *prima facie* obviousness of claim 2.

In view of the above, Applicant respectfully requests that the Examiner reconsider and withdraw the rejection under 35 U.S.C. § 103 based on the asserted combination of *Darty*, *Maher*, *Smith*, *Rostoker*, and *Lee*.

3. *Darty - Maher - Smith - Rostoker - Jouper*

Claim 3 stands rejected under 35 U.S.C. § 103 as allegedly being unpatentable over *Darty* in view of *Maher*, *Smith*, and

Rostoker, and further in view of *Jouper et al.* (U.S. Patent 5,754,445). This rejection is respectfully traversed.

As set forth on page 6 of the Office Action, the Examiner relies on *Jouper* as allegedly teaching incremental features of dependent claim 3. Applicant notes, however, that this reliance on *Jouper* fails to make up for the deficiencies of the asserted *Darty*, *Maher*, *Smith*, and *Rostoker* combination discussed above.

At least for this reason, Applicant submits that the asserted combination of *Darty*, *Maher*, *Smith*, *Rostoker*, and *Jouper* (assuming these references may be combined, which Applicant does not admit) fails to establish *prima facie* obviousness of claim 3.

In view of the above, Applicant respectfully requests reconsideration and withdrawal of the rejection under 35 U.S.C. § 103 based on the asserted combination of *Darty*, *Maher*, *Smith*, *Rostoker*, and *Jouper*.

4. *Darty - Maher - Smith - Rostoker - Jones*

Claims 4-6 stand rejected under 35 U.S.C. § 103 as allegedly being unpatentable over *Darty*, in view of *Maher*, *Smith*, and *Rostoker*, and further in view of *Jones et al.* (U.S. Patent Nos. 4,811,136 and 4,782,422). Claims 9-11 stand rejected under 35 U.S.C. § 103 as allegedly being unpatentable over *Darty*, in view of *Maher*, *Smith*, and *Rostoker*, and further in view of *Jones et al.*

(U.S. Patent No. 4,811,136). These rejections are respectfully traversed.

As set forth on page 7-9 of the Office Action, the Examiner relies on *Jones* as allegedly teaching incremental features of dependent claims 4-6 and 9-11. Applicant submits, however, that this reliance on *Jones* fails to make up for the deficiencies of the asserted combination of *Darty*, *Maher*, *Smith*, and *Rostoker* discussed above. Furthermore, *Jones* fails to disclose or suggest the particular capabilities of ASICs in a load management module that interface power switching devices to a local microcontroller as recited in any of these dependent claims.

At least for this reason, Applicant submits that the asserted combination of *Darty*, *Maher*, *Smith*, *Rostoker*, and *Jones* (assuming these references may be combined, which Applicant does not admit) fails to establish *prima facie* obviousness of the above-listed claims.

In view of the above, Applicant respectfully requests that the Examiner reconsider and withdraw the rejection under 35 U.S.C. § 103 based on the asserted combination of *Darty*, *Maher*, *Smith*, *Rostoker*, and *Jones*.

5. *Darty - Maher - Smith - Rostoker - Jaskolski*

Claims 7 and 8 stand rejected under 35 U.S.C. § 103 as allegedly being unpatentable over *Darty* in view of *Maher*, *Smith*,

and *Rostoker*, and further in view of *Jaskolski* (U.S. Patent 4,050,083). This rejection is respectfully traversed.

As set forth on page 8 of the Office Action, the Examiner relies on *Jaskolski* as allegedly teaching incremental features of dependent claims 7 and 8. Applicant submits, however, that this reliance fails to makeup for the deficiencies of the asserted combination of *Darty*, *Maher*, *Smith*, and *Rostoker* discussed above. At least for this reason, Applicant submits that the asserted combination of *Darty*, *Maher*, *Smith*, *Rostoker*, and *Jaskolski* (assuming these references may be combined, which Applicant does not admit) fails to establish *prima facie* obviousness of claims 7 or 8.

In view of the above, Applicant respectfully requests reconsideration and withdrawal of the Examiner's rejection under 35 U.S.C. § 103 based on the asserted combination of *Darty*, *Maher*, *Smith*, *Rostoker*, and *Jaskolski*.

6. *Darty - Maher - Smith - Rostoker - Levran*

Claim 12 stands rejected under 35 U.S.C. § 103 as allegedly being unpatentable over Darty in view of *Maher*, *Smith*, and *Rostoker*, and further in view of *Levran et al.* (U.S. Patent 5,982,645). This rejection is respectfully traversed.

As set forth on pages 9-10 of the Office Action, the Examiner relies on *Levran* as allegedly teaching incremental features of

dependent claim 12. Applicant submits, however, that this reliance fails to makeup for the deficiencies of the asserted combination of *Darty*, *Maher*, *Smith*, and *Rostoker* discussed above. Furthermore, *Levran* fails to teach or suggest a load management module as required by claim 12, in which each of a plurality of ASICs interfacing corresponding power switching devices to a local microcontroller includes logic for a soft-start function when operating in the DC mode. At least for this reason, the asserted combination of *Darty*, *Maher*, *Smith*, *Rostoker*, and *Levran* (assuming these references may be combined, which Applicant does not admit) fails to establish *prima facie* obviousness of claim 12.

In view of the above, Applicant respectfully requests reconsideration and withdrawal of the Examiner's rejection under 35 U.S.C. § 103 based on the asserted combination of *Darty*, *Maher*, *Smith*, *Rostoker*, and *Levran*.

7. *Darty - Maher - Smith - Rostoker - Daum - David*

Claims 13 and 14 stand rejected under 35 U.S.C. § 103 as allegedly being unpatentable over *Darty* in view of *Maher*, *Smith*, and *Rostoker*, and further in view of *Daum et al.* (U.S. Patent 6,242,922) and *David* (U.S. Patent 5,604,385). This rejection is respectfully traversed.

As set forth on pages 10-11 of the Office Action, the Examiner relies on *Daum* and *David* as allegedly teaching incremental features

of dependent claims 13 and 14. Applicant submits, however, that this reliance fails to make up for the deficiencies of the asserted combination of *Darty*, *Maher*, *Smith*, and *Rostoker* discussed above. Furthermore, the additional secondary references of *Daum* and *David* fail to teach or suggest a load management module configuration as recited in claim 1, in which each of a plurality of ASICs that interface corresponding power switching devices to a local microcontroller are configured such that at least two of the plurality of ASICs are coordinated to allowed gang operation (claim 13) or wherein three ASICs and power switching devices are gang operated in AC mode to control AC-phase power source (claim 14).

At least for this reason, the asserted combination of *Darty*, *Maher*, *Smith*, *Rostoker*, *Daum*, and *David* (assuming these references may be combined, which Applicant does not admit) fails to establish *prima facie* obviousness of claim 13 or 14.

In view of the above, Applicant respectfully requests reconsideration and withdrawal of the Examiner's rejection under 35 U.S.C. § 103 based on the asserted combination of *Darty*, *Maher*, *Smith*, *Rostoker*, *Daum*, and *David*.

8. *Darty - Maher - Smith - Rostoker - Miesterfeld*

Claim 16 stands rejected under 35 U.S.C. § 103 as allegedly being unpatentable over *Darty* in view of *Maher*, *Smith*, and

Rostoker, and further in view of *Miesterfeld* et al. (U.S. Patent 4,742,349). This rejection is respectfully traversed.

As set forth on page 11 of the Office Action, the Examiner relies on *Miesterfeld* as allegedly teaching incremental features of dependent claim 16. Applicant submits, however, that this reliance fails to make up for the deficiencies of the asserted combination of *Darty*, *Maher*, *Smith*, and *Rostoker* discussed above. At least for this reason, the asserted combination of *Darty*, *Maher*, *Smith*, *Rostoker*, and *Miesterfeld* (assuming these references may be combined, which Applicant does not admit) fails to establish *prima facie* obviousness of claim 16.

In view of the above, Applicant respectfully requests reconsideration and withdrawal of the Examiner's rejection under 35 U.S.C. § 103 based on the asserted combination of *Darty*, *Maher*, *Smith*, *Rostoker*, and *Miesterfeld*.

9. *Darty - Maher - Smith - Rostoker - Matsumaru/Thomas*

Claim 17 stands rejected under 35 U.S.C. § 103 as allegedly being unpatentable over *Darty* in view of *Maher*, *Smith*, and *Rostoker*, and further in view of *Matsumaru* et al. (U.S. Patent 5,818,673). Claim 18 stands rejected under 35 U.S.C. § 103 as allegedly being unpatentable over *Darty* in view of *Maher*, *Smith*, *Rostoker*, and *Matsumaru*, and further in view of *Thomas et al.* (U.S. Patent 6,331,763). This rejection is respectfully traversed.

As set forth on page 12 of the Office Action, the Examiner relies on *Matsumaru* as allegedly teaching incremental features of dependent claim 17. Applicant submits, however, that *Matsumaru* fails to make up for the deficiencies of the asserted combination of *Darty*, *Maher*, *Smith*, and *Rostoker* discussed above. At least for this reason, the asserted combination (assuming these references may be combined, which Applicant does not admit) fails to establish *prima facie* obviousness of claim 17.

Furthermore, the Examiner's reliance on *Thomas* on page 12 of the Office Action as allegedly teaching incremental features of claim 18, fails to make up for such deficiencies of the asserted combination of *Darty*, *Maher*, *Smith*, *Rostoker* and *Matsumaru*.

In view of the above, Applicant respectfully requests reconsideration and withdrawal of the Examiner's rejections under 35 U.S.C. § 103 based on the asserted combination of *Darty*, *Maher*, *Smith*, *Rostoker*, *Matsumaru*, and *Thomas*.

10. *Darty - Maher - Smith - Rostoker - Schmidt/Matsumaru - Thomas*

Claim 19 stands rejected under 35 U.S.C. § 103 as allegedly being unpatentable over *Darty* in view of *Maher*, *Smith*, and *Rostoker*, and further in view of *Schmidt et al.* (U.S. Patent 5,550,702). Claim 20 stands rejected under 35 U.S.C. § 103 as allegedly being unpatentable over *Darty* in view of *Maher*, *Smith*,

Rostoker, and *Schmidt*, and further in view of *Matsumaru* and *Thomas*. These rejections are respectfully traversed.

As set forth on pages 13-14 of the Office Action, the Examiner relies on *Schmidt*, *Matsumaru*, and *Thomas* as allegedly teaching incremental features of dependent claims 19 and 20. Applicant submits, however, that this reliance fails to make up for the deficiencies of the asserted combination of *Darty*, *Maher*, *Smith*, and *Rostoker* discussed above. At least for this reason, the asserted combination of references (assuming these references may be combined, which Applicant does not admit) fails to establish *prima facie* obviousness of claim 19 or 20.

In view of the above, Applicant respectfully requests reconsideration and withdrawal of the Examiner's rejections under 35 U.S.C. § 103 based on the asserted combination of *Darty*, *Maher*, *Smith*, *Rostoker*, *Schmidt*, *Matsumaru*, and *Thomas*.

Conclusion

Should there be any outstanding matters that need to be resolved in the present application, the Examiner is respectfully requested to contact D. Richard Anderson (Reg. No. 40,439) at the telephone number of the undersigned below, to conduct an interview in an effort to expedite prosecution in connection with the present application.

If necessary, the Commissioner is hereby authorized in this, concurrent, and future replies, to charge payment or credit any overpayment to Deposit Account No. 02-2448 for any additional fees required under 37 C.F.R. §§ 1.16 or 1.17; particularly, extension of time fees.

Respectfully submitted,

BIRCH, STEWART, KOLASCH & BIRCH, LLP

By _____
D. Richard Anderson, #40,439

P.O. Box 747
Falls Church, VA 22040-0747
(703) 205-8000

DRA/jao
2929-0157P